

Applicants: SMOLYAR, Lev, et al.
Serial No.: 09/966,753
Filed: October 1, 2001
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REMARKS

Applicants respectfully request reconsideration of the above-identified application in view of the following remarks.

Priority

Applicants acknowledge that the priority claim to US Patent Application Number 09/301,116, filed April 28, 1999, was incorrectly placed in the foreign priority section of the declaration, filed December 11, 2001. Applicants hereby affirm that a foreign priority claim is not being made in this application. Rather, Applicants have made a proper continuation-in-part priority claim under 35 U.S.C. § 120.

Manual of Patent Examining Procedure (MPEP) section 201.11.III.A states "When a nonprovisional application (other than a CPA) is entitled under 35 U.S.C. 120 to an earlier U.S. effective filing date, a statement such as "This is a divisional (or continuation, or continuation-in-part, as appropriate) application of Application No. ---, filed ---" should appear as the first sentence(s) of the specification or in an application data sheet". Applicants have properly included such a statement in the first sentence of the application under the heading "Related Application".

The Filing Receipt mailed by the USPTO on October 25, 2001, indicates Applicants submitted a correct domestic priority claim to US Patent Application Number 09/301,116. The updated Filing Receipt mailed by the USPTO on December 18, 2001, incorrectly indicates that Applicants are making a foreign priority claim to the same US application. It is presumed that this error arose from Applicants' incorrectly indicating the domestic priority claim as a foreign priority claim in the declaration. It is respectfully requested that the Examiner's statement that Applicants have made a defective foreign priority claim be withdrawn. Applicants will separately file a request to have a corrected Filing Receipt issued eliminating the erroneous foreign priority claim.

Oath/Declaration

The Examiner asserted the Declaration was defective.

As indicated above, Applicants do not make a foreign priority claim to US Patent Application Number 09/301,116. Instead, Applicants have made a proper domestic priority

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claim to this application under 35 U.S.C. § 120. Applicants are not required to identify domestic priority claims in the oath or declaration (see at least MPEP section 602). It is respectfully submitted that Applicants have made all necessary affirmations in the declaration filed on December 11, 2001. Therefore, a new oath or declaration does not need to be submitted (see at least MPEP section 602.01).

It is respectfully requested that the Examiner's request for a new oath or declaration be withdrawn.

Status of Claims

Claim 29 has been previously canceled. Claims 1-28 and 30 are pending in this application. Claims 1, 14, and 30 have been amended. It is respectfully submitted that no new matter has been added.

Claim Rejections

35 U.S.C. § 102 Rejections

On pages 3-5 of the Office Action, the Examiner rejected Claims 1-5, 9-18, 22-25, 28 and 30 under 35 U.S.C. § 102(e) as being anticipated by Bottomley (US Patent No. 6,363,104). Applicants respectfully request the withdrawal of the rejection of Claims 1-5, 9-18, 22-25, 28, and 30 under 35 U.S.C. § 102(e) in light of the foregoing amendments and the remarks that follow.

Amended independent Claims 1, 14, and 30 each include a rake receiver having a finger block including at least two fingers "wherein said at least two fingers of said finger block jointly track at least two paths of a multipath channel, and wherein said at least two paths have a time separation that is less than approximately 1.5 times a chip duration".

Bottomley is absent any teaching of grouping at least two fingers into a finger block for the purpose of jointly tracking at least two paths of a multipath channel where a time separation between these at least two paths is less than approximately 1.5 times a chip duration.

It is therefore respectfully submitted that Claims 1, 14, and 30, are not anticipated by Bottomley. Each of claims 4-5, 9-13, 15-18, 22-25 and 28 depends, directly or indirectly, from one of claims 1 or 14, and is therefore likewise allowable.

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The rejection of Claims 1-5, 9-18, 22-25, 28, and 30 under 35 U.S.C. § 102(c) as being anticipated by Bottomley is therefore requested to be withdrawn.

35 U.S.C. § 103 Rejections

On page 6 of the Office Action, the Examiner rejected Claims 6-8 and 19-21 under 35 U.S.C. § 103(a) as being unpatentable over Bottomley in view of Applicant Admitted Prior Art. Applicants respectfully request the withdrawal of the rejection of Claims 6-8 and 19-21 under 35 U.S.C. § 103(a) in light of the foregoing amendments and the remarks that follow.

As discussed above, each of claims 1 and 14 is allowable over Bottomley. Each of claims 6-8 and 19-21 depends, directly or indirectly from claim 1 and is therefore likewise allowable. The prior art in Applicants's specification does not cure the deficiencies of Bottomley.

Paragraph [0007] of Applicants' published application states:

As is known in the art, a crucial requirement of the rake receiver is that its fingers are time aligned (synchronized) with the multipath components of the channel. This requires estimation of the multipath delays and is often achieved by a simple early-late time tracking mechanism. The early-late mechanism is, in fact, a delay-lock-loop that measures the energy prior (early) and after (late) the current sampling instances. These early and late energy measurements are used to lock on the sampling instance that maximizes the sampled signal energy. As it turns out, these maximal energy sampling instances leads, in many cases, to the desired synchronization of the rake fingers to the channel multipath components.

When a channel has multipath components, a rake receiver may be employed where each finger of the rake receiver attempts to track one of the multiple paths of the channel. "Tracking" a path refers to attempting to estimate the relative delay of the path from the transmitter to the receiver. This is often accomplished using an "early-late" algorithm which decides whether the estimated delay of a path should be earlier or later. The finger tracking this path is then adjusted based on the early-late decision.

Paragraph [0007] of Applicants' published application further states:

However, some channels, for example those encountered in dense urban environments, consist of a large number of closely spaced multipath components. This leads to multipath clusters that are often spaced less than T_c

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apart. Conventional early-late time tracking mechanism are often incapable of tracking the delays associated with those closely spaced multipath clusters since their early and late measures are a superposition of the energies associated with several adjacent clusters. In such a situation, the rake fingers are not properly time aligned with the multipath clusters, leading to degradation in the receiver performance.

However, the standard "early-late" algorithm may not work when the multiple paths of the channel are closely spaced – for example, if the paths are less than 1 chip duration apart. In this scenario, because the fingers do not jointly track close paths, the individual fingers may be incapable of tracking the delays of the closely spaced paths. When determining whether an estimated delay of a path should be earlier or later, the standard "early-late" algorithm may erroneously include closely spaced nearby paths in the determination and make an incorrect decision. Because the paths are individually tracked in the standard "early-late" algorithm there is no way to prevent this from occurring.

In contrast, Applicants claim in amended independent Claims 1, 14, and 30 a rake receiver having a finger block including at least two fingers "wherein said at least two fingers of said finger block jointly track at least two paths of a multipath channel, and wherein said at least two paths have a time separation that is less than approximately 1.5 times a chip duration".

Applicants respectfully request that the Examiner withdraw the rejection of Claims 6-8 and 19-21 under 35 U.S.C. § 103(a) as being unpatentable over Bottomley in view of Applicant Admitted Prior Art.

Claim Objections

Applicants thank the Examiner for the indication of allowable subject matter in Claims 26 and 27. Each of claims 26 and 27 depends from, directly or indirectly, claim 14, which as discussed is allowable. Therefore, claims 26 and 27 are therefore likewise allowable.

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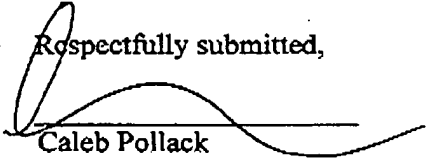
CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the pending claims distinguish over the prior art of record and are in condition for allowance. Favorable consideration and passage to issue are therefore respectfully requested.

The Examiner is invited to telephone the undersigned counsel to discuss any further issues yet to be resolved in connection with this application.

Please charge any fees associated with this paper to deposit account No. 50-3355.

Respectfully submitted,



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